THE CLAIMS

1-35 (Canceled)

36. (Original) A transistor comprising:

a source region, a drain region, a channel region between the source and drain regions, and a gate separated from the channel region by an insulator, the gate formed of a silicon carbide compound $Si_{1-x}C_x$, wherein x is greater than 0.5 to establish a desired value of a barrier energy between the gate and the insulator.

37. (Original) A transistor comprising:

a source region, a drain region, a channel region between the source and drain regions, and a gate separated from the channel region by an insulator, the gate formed of a silicon carbide compound $Si_{1-x}C_x$, wherein x is selected at a predetermined value approximately between 0.5 and 1.0 to establish a desired value of a barrier energy between the gate and the insulator.

38. (Original) The transistor of claim 36, wherein the value of the barrier energy is approximately between 0 eV and 2.8 eV.

39. (Original) The transistor of claim 36, wherein the insulator is formed of silicon dioxide.

40-58 (Canceled)

59. (Original) A transistor comprising:

a source region formed in a substrate;

a drain region formed in the substrate;

a channel region in the substrate between the source region and the drain region; and

a gate separated from the channel region by an insulator, the gate comprising a silicon carbide compound $Si_{1-x}C_x$, wherein x is selected to be between 0.5 and 1.0.

60. (Original) The transistor of claim 59 wherein:
the substrate comprises a p-type silicon substrate;
the source region comprises an n+-type source region formed in the substrate;
the drain region comprises an n+-type drain region formed in the substrate; and
the insulator comprises a layer of silicon dioxide.

61. (Original) The transistor of claim 59 wherein the gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.

62. (Original) A transistor comprising:
a source region formed in a substrate;
a drain region formed in the substrate;
a channel region in the substrate between the source region and the drain region; and
a gate separated from the channel region by an insulator, the gate comprising a silicon carbide compound $Si_{1-x}C_x$, wherein x is selected to be between 0.1 and 0.5.

63. (Original) The transistor of claim 62 wherein:
the substrate comprises a p-type silicon substrate;
the source region comprises an n+-type source region formed in the substrate;
the drain region comprises an n+-type drain region formed in the substrate; and
the insulator comprises a layer of silicon dioxide.

64. (Original) The transistor of claim 62 wherein the gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.

65. (Original) A transistor comprising:

a source region formed in a substrate;

a drain region formed in the substrate;

a channel region in the substrate between the source region and the drain region; and

a gate separated from the channel region by an insulator, the gate comprising a silicon carbide compound $Si_{1-x}C_x$, wherein x is selected to be less than 0.5.

66. (Original) The transistor of claim 65 wherein:

the substrate comprises a p-type silicon substrate;

the source region comprises an n+-type source region formed in the substrate;

the drain region comprises an n+-type drain region formed in the substrate; and

the insulator comprises a layer of silicon dioxide.

67. (Original) The transistor of claim 65 wherein the gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.

68-70 (Canceled)

71. (Original) A floating gate transistor comprising:

a source region formed in a substrate;

a drain region formed in the substrate;

a channel region in the substrate between the source region and the drain region;

a floating gate separated from the channel region by an insulator, the floating gate comprising a silicon carbide compound $Si_{1-x}C_x$, wherein x is selected to be between 0.5 and 1.0; and

a control gate separated from the floating gate by an intergate dielectric.

72. (Original) The floating gate transistor of claim 71 wherein:

the substrate comprises a p-type silicon substrate;

the source region comprises an n+-type source region formed in the substrate;

the drain region comprises an n+-type drain region formed in the substrate;

the insulator comprises silicon dioxide; and

the intergate dielectric comprises silicon dioxide.

73. (Original) The floating gate transistor of claim 71 wherein the floating gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.

74. (Original) A floating gate transistor comprising:

a source region formed in a substrate;

a drain region formed in the substrate;

a channel region in the substrate between the source region and the drain region;

a floating gate separated from the channel region by an insulator, the floating gate comprising a silicon carbide compound $Si_{1-x}C_x$, wherein x is selected to be between 0.1 and 0.5; and

a control gate separated from the floating gate by an intergate dielectric.

75. (Original) The floating gate transistor of claim 74 wherein:

the substrate comprises a p-type silicon substrate;

the source region comprises an n+-type source region formed in the substrate;

the drain region comprises an n+-type drain region formed in the substrate;

the insulator comprises silicon dioxide; and

the intergate dielectric comprises silicon dioxide.

76. (Original) The floating gate transistor of claim 74 wherein the floating gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.

77. (Original) A floating gate transistor comprising:

a source region formed in a substrate;

a drain region formed in the substrate;

a channel region in the substrate between the source region and the drain region;

a floating gate separated from the channel region by an insulator, the floating gate comprising a silicon carbide compound $Si_{1-x}C_x$, wherein x is selected to be to be less than 0.5; and

a control gate separated from the floating gate by an intergate dielectric.

78. (Original) The floating gate transistor of claim 77 wherein:

the substrate comprises a p-type silicon substrate;

the source region comprises an n+-type source region formed in the substrate;

the drain region comprises an n+-type drain region formed in the substrate;

the insulator comprises silicon dioxide; and

the intergate dielectric comprises silicon dioxide.

79. (Original) The floating gate transistor of claim 77 wherein the floating gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.

80. (Original) A floating gate transistor comprising:

a source region formed in a substrate;

a drain region formed in the substrate;

a channel region in the substrate between the source region and the drain region;

a floating gate separated from the channel region by an insulator, the floating gate comprising a silicon carbide compound $Si_{1-x}C_x$, wherein x is selected to be between 0.5 and 0.75; and

a control gate separated from the floating gate by an intergate dielectric.

81. (Original) The floating gate transistor of claim 80 wherein:
the substrate comprises a p-type silicon substrate;
the source region comprises an n+-type source region formed in the substrate;
the drain region comprises an n+-type drain region formed in the substrate;
the insulator comprises silicon dioxide; and
the intergate dielectric comprises silicon dioxide.

82. (Original) The floating gate transistor of claim 80 wherein the floating gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.

83. (Original) A floating gate transistor comprising:
a source region formed in a substrate;
a drain region formed in the substrate;
a channel region in the substrate between the source region and the drain region;
a floating gate separated from the channel region by an insulator, the floating gate comprising a silicon carbide compound $Si_{1-x}C_x$, wherein x is selected to be between 0.75 and 1.0; and

a control gate separated from the floating gate by an intergate dielectric.

84. (Original) The floating gate transistor of claim 83 wherein:
the substrate comprises a p-type silicon substrate;
the source region comprises an n+-type source region formed in the substrate;
the drain region comprises an n+-type drain region formed in the substrate;

the insulator comprises silicon dioxide; and

the intergate dielectric comprises silicon dioxide.

85. (Original) The floating gate transistor of claim 83 wherein the floating gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.

86-97 (Canceled)

98. (Original) The transistor of claim 36, wherein the gate is an electrically isolated floating gate and further comprising a control gate, separated from the floating gate by an intergate dielectric comprising silicon dioxide.

99. (Original) The transistor of claim 37 wherein:

the insulator comprises silicon dioxide; and

the gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.

100 (Canceled)